Motivation and Expectation: The Relationship between Stress, College Expectations, and Challenge/Threat Perceptions

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Abstract

The purpose of this research was to explore the relationship between anxiety, challenge and threat assessment, and expectations of college life. Administered between midterms and finals, the researchers felt this possessed a greater accuracy toward measuring than traditional pre-semester assessments. By examining these relationships, it is hoped improvements can be made in all three areas in the future. Results indicates a negative correlation between stress and challenge/threat scales with the sample as a whole, and when analyzed based on gender. Students attempting 15 hours for the current term, based on results, indicated a negative correlation between stress and college expectations.

Keywords: Stress, College Expectations, Challenge, Threat, Hindrance, Motivator

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The ability to rise to a challenge, to cope with stress, and to adapt to expectations is fundamental to success in academia. While terminology varies within sub-disciplines of psychology, the exhaustive research that has been conducted on the influence of stress and the perception of threats or challenges across psychology have predominantly indicated that low to moderate stress can potentially improve task performance whether manual or cognitive. Additionally, research into the influences on perceptions of difficulty in performance in tasks involving physical manipulation or cognition have indicated increased performance when perceptions of a task align closer to a challenge, and perceptions of threat indicate a reduction in ability in these same tasks.

Stress as a motivator or inhibitor has been commonly explored in psychology, particularly in business or academic applications. While the focus of this study is on academic performance, studies have suggested the same analogous results with such variations in task as academic performance to military exercises. The fundamental understanding of the influence of stress as applied to a biological basis is currently being explored by researchers of Hans Eysenck's methodology in terms of hypothesizing and testing psychological factors and biological causes for stress contextualized as anxiety. Research has been sufficiently supportive of the findings that levels of stress and individual interpretations influence performance outcomes that treatments are being developed for stress management with this goal in mind via online platform.

Studies have shown that perceptions of tasks as challenges instead of threats increases productivity on stressful tasks (Vine, Freeman, Moore, & Chandra-Ramanan, 2013). Specifically,

individual perception of available resources versus the demands placed upon them have been demonstrated in simulated surgery tasks. A continuance of these findings in terms of relational stress conducted by Delahaij, van Dam, Gailliard, & Soeters (2011) have indicated the capacity to adjust to acute stress is based partially on metacognition as it relates to coping strategy and coping style. Studies by Richardson, Abraham & Bond (2015) have expanded upon these findings by meta-analysis of factors influencing grade point average performance in college students, noting in their findings that self-efficacy had the highest correlation between 241 data sets and among 50 distinct correlates of grade point average. Rice, Ray, Davis, DeBlaere, & Ashby (2015) in longitudinal studies of the effects of stress as they relate to science, technology, engineering, and math (STEM) in terms of perfectionists found improved performance relative to stress levels in highly perfectionistic individuals for which perceptions of high stress tasks were viewed as challenges were higher than those scoring lower on perfectionistic measures. This is supported by research by Flinchbaugh, Luth, and Li (2015) with variance in terminology referencing positive and negative stressors instead of high or low stress. Higher levels of negative stressors beyond a certain threshold inhibit the ability to personally contextualize the importance of the goal, at which point negative performance was reported. Birk, Dennis, Shin,& Urry (2011) have based research on theorizing that low levels of stress may facilitate improved attentional control. Results indicated that in this instance, however, results only marginally met predictions. Hintz, Fraizer, and Merideth (2015) through evaluation and study on feasibility of online therapy for stress management to improve quality of life focused on present control due to previous research indicating associated positive outcomes in quality of life improvement. Results were consistent with predictions in that self-reported stress had higher incidence of effective management in participants following therapies based on present control for the entirety of the

program. Eysenck, Derakshan, Santos, & Calvo (2007) in research following the methodology of Hans Eysenck, that is to make theoretical predictions for psychological phenomena and test against biological factors hypothesized inhibited attentional control efficiency and increases the influence of the attention to threat stimuli. However, while divergent from the research of Flinchbaugh, Luth, and Li (2007) in predictions of attentional control efficiency, improved functioning when it relates to compensatory strategies is consistent with both studies.

This study is an adaptation applied to undergraduate college experiences. The current study was designed to correlate perceived stress, college expectations, and challenge/threat perceptions. Stress levels were calculated via self-report results on sources of stress and frequencies of coping behaviors, then calculated as a composite score, which lastly was converted to a percentage. This allowed for a projected range of low, moderate, and high levels for each. Challenge/threat perceptions were calculated based on a Likert scale in which demand values were subtracted from available resource values to create a range -4 to +4. College expectations were measured using subscales from the CSXQ, a self-report survey measure, then subsequently converted into a composite score, which was converted into a percentage. It was hypothesized that students with high challenge perceptions are expected to have lower stress and higher college expectations, while higher threat perceptions were expected to correlate with higher stress and lower college expectations. Spearman-rho correlations were performed to test whether this is the case, with linear regression performed if significant strength of relationships between variables was indicated from correlation results. Additionally, students with higher self-reported stress were expected to have lower college expectations, and vice versa. It was hoped that by studying these relationships, further analysis can be performed to find commonalities in stress and threat factors in future studies to improve student performance.

Methods

Participants

Participants were recruited from English, Psychology, and Social Work courses during the Fall 2015 semester of the University of Tennessee at Martin. This was done in order to ensure that participants answering the conducted survey were students at the time of their participation, given the scope of the research. Analysis of demographics based on age, gender, ethnicity, class standing, and attempted hours for the Fall 2015 semester were conducted for the determination of viable secondary analysis based on demographic to compare to the total sample test results. The criteria set for secondary analysis was based on having an approximate 20 percent or higher for a particular demographic category. In this particular instance, males and females, as well as students attempting 15 course hours met this criteria. Approximately 21% of participants were male, 79% female, and 23.2% were attempting 15 hours. An exclusion to secondary analysis was made in the case of class standing, as variations within each classification were skewed toward freshmen at approximately 41%, with chance for error due to approximation excluding comparative cases by other classifications. In other words, despite the percentage of participants that were freshmen, the remaining classifications did not reach the 20% mark with certainty so a comparison was not made. Additionally, given the majority of participants having been freshmen, with only four categories reported from freshman to senior, validity of analysis in this case could not reliably be assumed.

Materials

The survey was hosted through online survey site Qualtrics. In addition to researcher authored demographic questions and demand resource Likert questions, stress self-report questions were taken from *Why are you Stressed?* by Kathleen McWhorter which has been

included in freshmen orientation courses within course text or administered by instructors independently at the University of Scranton since 2000. Additionally, the College Student Expectation Questionnaire (CSXQ), designed and distributed by the University of Indiana until 2014 for analysis of student expectations for college and faculty resource management, was selected based on use of subsections used in analysis of student expectations for college, which were included in this study. The CSXQ sections used in this study were "College Activities," "Communications," and "The College Environment."

Procedure

Participants answered demographic questions such as age, current hours enrolled, ethnicity, challenge/threat Likert questions on a five point scale each asked how demanding participants perceive life and to what degree they have the resources to meet those demands, stress causes and coping behaviors, and subsections of the College Student Expectation Questionnaire (CSXQ). The difference between demands and resources was calculated into a range of -4 to +4 to assess challenge/threat, with -4 to -2 indicative of perceptions of threat, -1 to +1 as neither challenge nor threat, and +2 to +4 indicative of perceptions of challenge. Criteria for demands and resource questions were based on subjective determination as to personally significant life events for the individual participant. Stress assessment responses were recorded using a slider that measured a scale of 0 to 100 for each question, after which a composite score for all questions was calculated and converted into a percentage. For questions related to college expectations, a slider scale indicating values of 0 to 100 were used for each question per subsection, with composite scores calculated and converted to percentages. When the research study made use of slider questions, questions displayed contextualization labels for participants

such as frequency or agreement, with numeric values hidden. Slider values were low to high from left to right, respectively

Results

To find if there were relationships between the reported stress, college expectations, and challenge/threat perceptions; a series of Spearman Rho correlations was performed on the variables stress, challenge/threat perceptions, and college expectations. A KS test was performed to assess normality, and normality was not assumed. A significant correlation was found between challenge/threat perceptions and stress $r = -0.38$, $p < .05$.

Correlations

			Stress Composite	CTInt
	Stress Composite	Spearman's Correlation	1.00	-.383
		Sig. (2-tailed)	.	.000
		N	107	107
	CTInt	Spearman's Correlation	.-.383	1.00
		Sig. (2-tailed)	.000	.

		N	107	107

To find if there were relationships between the reported stress, college expectations, and challenge/threat perceptions in Males; a series of Spearman Rho correlations was performed on the variables stress, challenge/threat perceptions, and college expectations. Assumptions were not met. A significant correlation was found between challenge/threat perceptions and stress $r = -0.45$, $p < .05$.

Correlations

			Stress Composite	CTInt
	Stress Composite	Spearman's Correlation	1.00	-.450
		Sig. (2-tailed)	.	.031
		N	23	23
	CTInt	Spearman's Correlation	.-.450	1.00
		Sig. (2-tailed)	.031	.

		N	23	23

To find if there were relationships between the reported stress, college expectations, and challenge/threat perceptions in Females; a series of Spearman Rho correlations was performed on the variables stress, challenge/threat perceptions, and college expectations. Assumptions were not met. A significant correlation was found between challenge/threat perceptions and stress $r = -0.37$, $p < .05$.

Correlations

			Stress Composite	CTInt
	Stress Composite	Spearman's Correlation	1.00	-.365
		Sig. (2-tailed)	.	.001
		N	84	84
	CTInt	Spearman's Correlation	.-.365	1.00
		Sig. (2-tailed)	.001	.

		N	84	84

To find if there were relationships between the reported stress, college expectations, and challenge/threat perceptions in students attempting 15 hours; a series of Spearman Rho correlations was performed on the variables stress, challenge/threat perceptions, and college expectations. Assumptions were not met. A significant correlation was found between college expectations and stress $r = - 0.36$, $p < .05$.

Correlations

			Stress Composite	College Expectations
	Stress Composite	Spearman's Correlation	1.00	-.355
		Sig. (2-tailed)	.	.064
		N	28	28
		Spearman's Correlation	.-.355	1.00
		Sig. (2-tailed)	.064	.

	College Expecations	N	28	28

Discussion

Overall, results indicated a mild negative correlation between stress and challenge/threat perceptions. That is, the more participant stress that was present, the more likely responsibilities were perceived as threats. Lower stress scores accompanied perceptions of responsibilities as a challenge. Further testing will be performed on the data with emphasis on selection by demographics and analysis of variances for both stress and college expectations. It is felt at this time that results from initial tests merit additional exploration. At this point in the research, possibilities in managing stress to influence challenge/threat perceptions and vice versa to improve academic performance are still under consideration.

Summarizing Findings

Analyses ran on the sample based on Spearman rho results indicated a mild negative correlation between stress and college expectations. This is contradictory to analogous studies conducted previously (. In an attempt to locate the disparity in results, or attempt to verify that the issue possibly dependent on demographics of participants, secondary analyses were conducted on males and females, as well as those students taking 15 attempted hours for the Fall 2015 semesters with a criteria of over 20% of the sample belonging to a designation. Class standing was excluded despite approximately 41% of participants identifying as freshmen due to internal validity issues. Secondary analyses based on reported gender indicated a mild correlation

between stress and challenge/threat, with males having a higher negative correlation and females lower compared to total sample analyses. The conclusion drawn from this result is that the total sample is more representative of the female sample than the male, and that the male section of the sample is responsible for the slight increase in negative correlation for total sample comparative to females. Additionally, for students attempting 15 hours for the Fall 2015 semester as reported in the survey, a significant negative correlation was found between college expectations and stress, but not with challenges and threat compared to either. This leads the researchers to believe that the variations that result in negative correlations between stress composites and factors of challenge/threat perception exist outside of this attempted hour range. Additionally, comparatively speaking, give the negative correlation between college expectations and stress for students was indicated in those selected by taking 15 attempted hours but not in the total sample, researchers are considering the possibility that the variations responsible for lack of significance in these results for the overall sample are possibly located in participants with higher or lower reported attempted hours.

Future Research

Future research conducted by the authors of this study will implement a repeat measures design as well as increased rigor in recruitment to allow for a broader spectrum of secondary analyses both for analyses within the subsequent research, but also for use as comparative data with the current study. The original design relied largely on subjective self-report for the source of data from participants. However researchers intend to review measures with possibility of finding instruments with greater validity, or conducting criterion analysis on instruments used in the current and secondary studies to increase validity and reliability. Progressive research structure for the researchers follow a second study with potentially revised instruments and

repeat measures on general college demographic, incoming freshmen exclusively, and inside of specific international student populations for comparative results. Throughout these subsequent studies criterion analysis will be conducted, as well as a long term goal of analyzing potential factors for analysis.

Limitations

Within the current study, completely subjective measures were found to have a negative impact on analysis. While the study is based on self-reports, the subjectivity of the instruments used increased difficulty of uniform reports per participants. Variations in question interpretation increased likelihood for interpretive error, and reduction of validity in results. Either the inclusion of additional instruments or researcher refinement of existing instruments would potentially lesson the possibility of error due to these factors. Secondly, due to the one trial design of the current study, baseline data for comparison within sample based on passage of time were not possible. This is potentially limiting for comparisons in factors that vary from beginning month of a particular semester to the month following midterms. This precludes empirical analysis on factors and their respective significance in accounting for variations over time.

Applications

The primary application of research results presently are for quality control purposes. Theoretically, the study into relationships between stress, challenge and threat perceptions, and college expectations can be used to modify one of the variables with negative correlations (i.e. stress with challenge and threat score) to achieve an increase in quality of life for students. Despite atypical results within the current research, source research indicates the hypothesized correlations, to the extent that stress mitigation programs are currently in design to provide

reduction of stress, perception of threat, and quality of life in terms of college performance and expectations. Likewise, given supportive literature on the relationships between the three variables, a single variable modification long term is not only viable, but exploration of multiple variable modifications for improved quality of life can be explored via research and application. That is, within the paradigm of the biopsychosocial model, stress mitigation along with alterations to implementation of college administered factors such as quality of faculty interaction and availability of healthy recreation and meals can be explored as a possibility for implementation for improvement for each factor, and correlated factors as a result. In the setting of the college environment, this has the potential for improved academic performance in addition to general reduction of physiological and psychological impairments due to negative stressors.

References

Birk, J. L., Dennis, T. A., Shin, L. M., & Urry, H. L. (2011). Threat facilitates subsequent executive control during anxious mood. *Emotion, 11*(6), 1291-1304. doi:10.1037/a0026152

Delahaij, R., van Dam, K., Gaillard, A. W. K., & Soeters, J. (2011). Predicting performance under acute stress: The role of individual characteristics. International Journal of Stress Management, 18(1), 49-66. doi:10.1037/a0020891

Eysenck, M. W., Derakshan, N., Santos, R., & Calvo, M. G. (2007). Anxiety and cognitive performance: Attentional control theory. *Emotion, 7*(2), 336-353. doi: 10.1037/ 15283542.7.2.336

Flinchbaugh, C., Luth, M. T., & Li, P. (2015). A challenge or a hindrance? understanding the effects of stressors and thriving on life satisfaction. *International Journal of Stress Management, 22*(4), 323-345. doi:10.1037/a0039136

Hintz, S., Frazier, P. A., & Meredith, L. (2015). Evaluating an online stress management intervention for college students. *Journal of Counseling Psychology, 62*(2), 137-147. doi: 10.1037/cou0000014

Rice, K. G., Ray, M. E., Davis, D. E., DeBlaere, C., & Ashby, J. S. (2015). Perfectionism and longitudinal patterns of stress for STEM majors: Implications for academic performance. *Journal of Counseling Psychology, 62*(4), 718-731. doi:10.1037/cou0000097

Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: A systematic review and meta-analysis. Psychological Bulletin, 138(2), 353-387. doi:10.1037/a0026838

Vine, S. J., Freeman, P., Moore, L. J., Chandra-Ramanan, R., & Wilson, M. (2013). Evaluating stress as a challenge is associated with superior attentional control and motor skill

performance: Testing the predictions of the biopsychosocial model of challenge and threat. *Journal of Experimental Psychology: Applied, 19*(3), 185-194. doi: 10.1037/a0034106

Appendix

Appendix A: Informed Consent

The following survey is a survey for an advanced research class. The first part of this survey is designed to measure how you feel about stress. The second part of this survey is to measure your expectations of college. Please be aware that questions are potentially sensitive in nature.

This survey should take you 15 minutes or less to complete per session, and that two sessions will be held approximately one month apart from each other.

Your participation in this research study is strictly voluntary, and you may choose to withdraw from participating at any time by closing the survey or by not selecting to submit your results at the conclusion of the questionnaire. You may also decide not to answer specific questions, this is okay. However, we encourage you to complete the survey fully as it all pertains to our research.

The researchers will only have access to answers that are not personally identifiable. The survey requests identifying information for tracking participation, however this information will be viewable only by the instructor, Dr. Mackewn. If you have any questions, comments, or concerns, you may contact the researchers directly: Raymond Yates (rayjyate@ut.utm.edu) and Ariel Vines (ariivine@ut.utm.edu). If you experience any lasting distress as a result of this survey, please contact Dr. Angie MacKewn (amackewn@utm.edu or 731-881-7370).

You must be legally considered an adult to participate in our research. If you are not the age of majority (18), you are not legally able to give consent on your own behalf. Please do not attempt to take this survey if you are under the legal age limit or otherwise unable to legally provide consent.

Although you are not receiving direct benefit from completing this survey, you will be aiding student researchers and expanding knowledge. If you wish to participate in this study, please continue and answer the following questions. Thank you for your time.

Appendix B – Stress Questionairre

See attachments

Stress Assessment

Appendix C – CSXQ

csxq_whole.pdf

See attachments